UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/943,005	08/31/2001	Walter Joseph Carpini	78945-11/Jlo	9279

29382	7590	10/03/2005

TROPIC NETWORKS INC.
DR. VICTORIA DONNELLY
135 MICHAEL COWPLAND DRIVE
KANATA, ON K2M 2E9
CANADA

EXAMINER
AHMED, SALMAN

ART UNIT	PAPER NUMBER
2666	

DATE MAILED: 10/03/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

PTO-90C (Rev. 10/03)

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on *31 August 2001*.

2a)☐ This action is **FINAL**.   2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-119* is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-119* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *8/31/01, 6/10/02* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☐ All   b)☐ Some * c)☐ None of:

      1.☐ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____.

      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
    Paper No(s)/Mail Date _____.

4) ☐ Interview Summary (PTO-413)
    Paper No(s)/Mail Date _____.

5) ☐ Notice of Informal Patent Application (PTO-152)

6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

1.　　The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2.　　This application currently names joint inventors. In considering patentability of

the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of

the various claims was commonly owned at the time any inventions covered therein

were made absent any evidence to the contrary. Applicant is advised of the obligation

under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was

not commonly owned at the time a later invention was made in order for the examiner to

consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g)

prior art under 35 U.S.C. 103(a).

3.　　Claims 1-119 are rejected under 35 U.S.C. 103(a) as being unpatentable over

Raj et al. (US PAT 6628649), hereinafter referred to as Raj in view of Goyal et al. (US

PAT 6466985), hereinafter referred to as Goyal.

In regards to claims 1, 2, 3, 4, 5, 6, 7, 9, 10, 11, 12, 16, 17, 18, 19, 21, 22, 23, 25, 29,

30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 42, 43, 44, 45, 46, 52, 54, 55, 57, 58, 66, 67, 73,

75, 76, 77, 78, 79, 80, 81, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 95, 96, 98, 99, 100,

101, 102, 103, 104, 105, 106, 107, 108, 109, 110, 111, 112, 113, 114, 115, 116, 117, 118, 119 Raj teaches an apparatus/system with a means and method in a communication network comprising a first switching router (figure 16 elements 200-1) and a second switching router (figure 16 elements 200-2), first and second communication paths (figure 16 elements 230-1 to 230-N and column 31 line 15, multiple parallel paths) extending between first and second switching routers, second communication path including at least one communication path element different from first communication (column 30 lines 4-6, each LSC 201 and partition 204 pair provides the capability to support a route for a separate parallel network) path.

Raj teaches first enabling means for enabling first switching router to output predetermined data for transmission to second switching router onto first communication path, and second enabling means for enabling said first switching router to output predetermined data for transmission to second switching router onto second communication path (column 20 lines 23-29, an example design of a label switch router (LSR) 200 configured according to one embodiment of the invention. The LSR 200 includes N label switch controllers (LSCs) 201-1 through 201-N coupled via N respective switch control interfaces 220-1 through 220-N to N respective switch resource partitions 240-1 through 240-N, which in turn each couple to M network ports 225). In regards to claim 75 Raj teaches (column 14 lines 30-33) the unipath technique uses one route, detects a failure, and then uses another route that is concurrently offered in parallel to the first route. In regards to claim 23 Raj teaches (column 26 lines

23-25) a port 225 can serve both as an input to receive data from the network and as a

mechanism to output data to the network

In regards to claims 1, 2, 3, 4, 5, 6, 7, 9, 10, 11, 12, 16, 18, 19, 21, 22, 23, 25, 26, 27,

28, 31, 32, 33, 34, 35, 36, 37, 38, 39, 42, 43, 44, 45, 46, 52, 54, 55, 57, 58, 66, 67, 73,

75, 76, 77, 78, 79, 80, 81, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 95, 96, 98, 99, 100,

101, 102, 103, 104, 105, 106, 108, 109, 110, 111, 112, 113, 114, 115, 116, 117, 118,

119 Raj does not explicitly teach first enabling means and method for enabling first

switching router to output predetermined data for transmission to second switching

router onto first communication path with a flow label and a first communication path

label, and second enabling means for enabling said first switching router to output

predetermined data for transmission to second switching router onto second

communication path with flow label and a second communication path label, and

second switching router having a flow label and an instruction both corresponding to

said flow label, and, if data is carried on first communication path, second switching

router being capable of matching the flow label carried with data with corresponding

flow label, and, if data is carried on second communication path, second switching

router being capable of matching the flow label carried with data with corresponding

flow label. In regards to claim 33, Raj does not explicitly teach establishing an

instruction for execution at the second node in respect of data which is to be transmitted

from the first node to the second node, establishing a flow label corresponding to

instruction for transmission with data from the first node to the second node, and storing

instruction and corresponding flow label at the second node. In regards to claim 24, Raj

does not explicitly teach labeling means is arranged to place the selected one of first and second communication path labels in front of flow label. In regards to claim 54, Raj does not explicitly teach the step of enabling said second node comprises transmitting a signal to said second node. In regards to claim 73, Raj does not explicitly teach of sending duplicate packets in first and second communication path. In regards to claim 92, Raj does not explicitly teach signaling means for transmitting a signal for network node, indicating that second communication path serves as an alternative path for first communication path.

In regards to claims 1, 2, 3, 4, 5, 6, 7, 9, 10, 11, 12, 16, 18, 19, 21, 22, 23, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 42, 43, 44, 45, 46, 52, 54, 55, 57, 58, 66, 67, 73, 75, 76, 77, 78, 79, 80, 81, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 95, 96, 98, 99, 100, 101, 102, 103, 104, 105, 106, 108, 109, 111, 112, 113, 114, 115, 116, 117, 118, 119 Goyal teaches (column 5 lines 66-67, column 6 lines 1-9) aggregation of separate flows to a tunnel in MPLS is done by using a label stack. A label is pushed on the stack at the entry of the tunnel, and popped off on exit. As the tunnel end may in effect be a multiplexing point (i.e., a virtual termination of many tunnels) the tunnel label must be assigned by the tunnel termination node (downstream allocation), to ensure that the enclosed labels further down on the stack are uniquely resolved. Goyal teaches (column 10 lines 26-29) with respect to the new label, potentially more than a single label will be pushed on the stack, for example when constructing a tunnel. The new label(s) may be pushed on top of already existing labels. Goyal further teaches (column 8 lines 19-30) router 200 receives a first packet at a first input port. FMM 218 of router

200 identifies a flow label for the first packet. FMM 218 searches a flow table stored

with tables 208 to determine whether the flow table has an entry for the flow label. In

regards to claim 33 Goyal teaches (column 8 lines 40-51) If there is no entry for the flow

label present in the flow table, FMM 218 creates an entry. FMM 218 determines

whether any attributes have been assigned to the flow label, such as route pinning. If a

route pinning attribute has not been assigned to the flow label, a pointer associated with

the flow label is stored in the flow table. The pointer points to an output port in the

routing table for router 200. If a route pinning attribute has been assigned to the flow

label, by FMM 218 or the first network device, FMM 218 copies the output port stored in

the routing table having the same destination as the first packet in the flow table. The

output port is associated with the flow label. In regards to claims 10, 13, 19, 32, 89, 95,

98 and 118, Goyal teaches (column 6 lines 56-57) a router includes a routing engine

202 having a processor 204 and a storage device 206. In regards to claim 25, 41,

Goyal teaches (column 5 lines 66-67, column 6 lines 1-2) to aggregate state, a node

(e.g., a backbone border node) may aggregate smaller flows and tunnel the aggregate

flow to a particular node in the network (an egress router for example). aggregate

separate flows to a tunnel in MPLS by using a label stack. In regards to claim 54, Goyal

teaches (column 10 lines 14-19) 48) to create a new label path from a source (S) to a

destination (D), S creates a datagram (or otherwise the protocol transfer unit of the

protocol used on the default (signaling) path), allocates a new label and issues a path-

request communicating a path request, the new label and the datagram. In regards to

claim 73, Goyal teaches (column 9, line19) using neighbor discover protocol" which will send same packets to discover adjacent nodes.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Raj's teachings by incorporating the teachings of Goyal. The motivation is that (as taught by Goyal, column 3 lines 19-26, this method explicitly identify a group of IP packets as belonging to a "flow," and ensures that packets of a flow traverse the same sequence of routers. This creates some unique advantages, such as load balancing, enhanced management and accountability, the ability to assign attributes to a flow, amortizing costly (in terms of bandwidth) operations over a sequence of packets, and providing symmetric and reverse path routing.

In regards to claims 2, 3, 4, 24, 48, 50, 51, 53, 60, Raj teaches (column 7 lines 11-14) MPLS process is able to detect incoming/arriving labeled cells and can match the labels of those cells via column 190-1 (Table 190 in FIG. 5B) to determine the proper outgoing port.

In regards to claims 8, 17, 20, 40, 55 Raj teaches a record (column 6 line 49, label lookup table) of first communication path label.

In regards to claims 14, 15 47, 49, 56, 59, 107, Raj teaches (column 6 line 21 label exchange protocol) a first forwarding label of first label switched path.

In regards to claims 26, 27, 28, 55, 57, 61, 69, 70, Raj teaches (column 10 lines 38-47) a means is provided for detecting an inability of the first switch control mechanism to

support the first route within the first partition. This may done, for instance, using the existence of not of communication between the switch control mechanism and a slave process in its respective partition, or the routing protocol may provide such fault detection. Also provided is a means, in response to the means for detecting, for re-routing a data stream transferred using the first route within the first partition to the second route within the second partition.

In regards to claims 30, 64, 65, 71, 94, 97, Raj teaches (column 10, lines 12-19) the first and second connection routing protocols are configured in parallel to offer the same routes, such that the first and second routes provided through the first and second partitions are parallel routes. This allows data to be routed via both routes to the same destination at the same time, or at different times in which case the first route can be used first, and if this route fails, the second route can be used. Raj teaches (column 11, lines 17-23) a failure of an LSC can be detected. in response to the means for detecting, is a means to establish a second connection in the second partition according to the second route supported by the second switch control mechanism. The second connection is used to provide data transfers of a stream of data formerly transferred through the first connection. This allows one route to handle data after the first route fails.

In regards to claim 62, 63, Raj teaches (column 7 lines 8-10) the MPLS processes 182 (FIG. 5A) in each route controller 175 through 178 also maintain an IP address/label table (e.g. 185) and a label/interface table.

In regards to claim 68, Raj teaches (column 6, lines 20-24) an MPLS process 182 in each route controller 175 through 178 executes a label exchange protocol (e.g., LDP) and a routing protocol (e.g. OSPF) and uses the switch control interface 180 to setup, remove or change the LVCs 145 in each LSR 160 through 163 according to the needs of routes.

In regards to claim 72, Raj teaches (column 33 line 40) routes can be selected based on minimum cost routes. As such, previously failed but now restored route can be again selected for data transmission.

In regards to claims 112 and 117, Raj teaches (fig 17b, element 230-4 and element 230-2) parallel routes can go through different routers thus using different flow labels to reach its destination.

4.   <u>Prior arts pertinent to the application but not used in office action:</u>

- US 6882627 B2   USPAT   Methods and apparatus for selecting multiple paths taking into account shared risk   Pieda; Peter Steven et al.

- US 6141319 A   USPAT   Link based alternative routing scheme for network restoration under failure   Dighe; Rajiv S. et al.

- US 6047331 A   USPAT   Method and apparatus for automatic protection switching Medard; Muriel et al.

- US 5058105 A   USPAT   Network alternate routing arrangement Mansour; M. Omar et al.

- US 4999829 A   USPAT   Automatic fault recovery in a packet network   Fite, Jr.; Franklin D. et al.

- US 20020186658 A1   US-PGPUB Method   and   apparatus   for communications traffic engineering   Chiu, Angela L. et al.

- US 20020133756 A1   US-PGPUB System and method for providing multiple levels of fault protection in a data communication network   Jain, Sudhanshu

- US 20020112072 A1   US-PGPUB System and method for fast-rerouting of data in a data communication network   Jain, Sudhanshu

- US 6813242 B1   USPAT   Method of and apparatus for fast alternate-path rerouting of labeled data packets normally routed over a predetermined primary label switched path upon failure or congestion in the primary path Haskin; Dimitry et al.

- US 6215765 B1   USPAT   SVC routing in network with static routing tables   McAllister; Shawn et al.

- US 5548639 A   USPAT   Distributed control of telecommunication network for setting up an alternative communication path   Ogura; Takao et al.

- US 20040213221 A1   US-PGPUB System and method for soft bandwidth   Civanlar, Seyhan et al.

- New approaches to service restoration in MPLS-based networks Bartos, R.; Raman, M.; Gandhi, A.;EUROCON'2001, Trends in Communications,

International Conference on.Volume 1,   4-7 July 2001 Page(s):58 - 61 vol.1

Digital Object Identifier 10.1109/EURCON.2001.937763

- An efficient recovery mechanism for MPLS-based protection LSP Sangsik Yoon;

  Hyunseok Lee; Deokjai Choi; Youngcheol Kim; Gueesang Lee; Lee, M.; ATM

  (ICATM 2001) and High Speed Intelligent Internet Symposium, 2001. Joint 4th

  IEEE International Conference on 22-25 April 2001 Page(s):75 - 79 Digital Object

  Identifier 10.1109/ICATM.2001.932060

Conclusion

5.   Any inquiry concerning this communication or earlier communications from the

examiner should be directed to Salman Ahmed whose telephone number is (571)272-

8307. The examiner can normally be reached on 8:30 am - 5:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, Seema Rao can be reached on (571)272-3174. The fax phone number for

the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the

Patent Application Information Retrieval (PAIR) system. Status information for

published applications may be obtained from either Private PAIR or Public PAIR.

Status information for unpublished applications is available through Private PAIR only.

For more information about the PAIR system, see http://pair-direct.uspto.gov. Should

you have questions on access to the Private PAIR system, contact the Electronic

Business Center (EBC) at 866-217-9197 (toll-free).

Salman Ahmed
Examiner
Art Unit 2666

SA

Seema S. Rao
SEEMA S. RAO 9/29/05
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2600